



Mitigating the allergic effects of fire ant envenomation with biologically based population reduction

Author(s): Porter SD, Oi DH, Valles SM, Vander Meer RK
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Abstract:

PURPOSE OF REVIEW: To describe the current efforts to use biological control agents to reduce fire ant population levels, thus ultimately reducing the number of human sting and allergic reaction incidents.

RECENT FINDINGS: Climate change and worldwide fire ant expansion will increase the frequency of human encounters and allergenic events, putting additional pressure on the public health sector. Six species of fire ant decapitating flies are now established in the United States. The microsporidium *Kneallhazia solenopsae* is well established and new fire ant hosts have been identified. The fire ant virus *Solenopsis invicta* virus 3 shows good potential for use as an environmentally friendly biopesticide because of its virulence and host specificity. **SUMMARY:** During separate founding events in the United States, Australia, mainland China, and Taiwan, fire ants native to South America escaped their native pathogens and parasites. Consequently, fire ant populations in these introduced regions pose a serious public health threat to the human populations by envenomation and subsequent allergic reactions. Specific, self-sustaining biological control agents have been discovered, studied, and released into fire ant populations in the United States in an effort to re-establish an ecological/competitive balance, resulting in reduced fire ant densities and human exposure.

Source: <http://dx.doi.org/10.1097/ACI.0b013e3283624544>

Resource Description

Communication: ☒

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience: ☒

audience to whom the resource is directed

Policymaker

Exposure : ☒

weather or climate related pathway by which climate change affects health

Ecosystem Changes

Climate Change and Human Health Literature Portal

Geographic Feature: ☒

resource focuses on specific type of geography

None or Unspecified

Geographic Location: ☒

resource focuses on specific location

United States

Health Co-Benefit/Co-Harm (Adaption/Mitigation): ☒

specification of beneficial or harmful impacts to health resulting from efforts to reduce or cope with greenhouse gases

A focus of content

Health Impact: ☒

specification of health effect or disease related to climate change exposure

Other Health Impact

Other Health Impact: allergic reaction to fire ant sting

Intervention: ☒

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Resource Type: ☒

format or standard characteristic of resource

Review

Timescale: ☒

time period studied

Time Scale Unspecified